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SMUTS AND RUSTS OF UTAH—IV¹

A. O. GARRETT

USTILAGINALES

6. USTILAGO BROMIVORA (Tul.) Fisch. de Waldh.

In ovaries of *Bromus tectorum* L.: 2503, June 2, 1919, Salt Lake City. Another collection on the same host was made in October, 1919. 2755, August 20, 1920, Providence, Cache Co.

This smut was very abundant in the early summer of 1919 on this host on the "benches" around Salt Lake City. In 1920, it has been observed in equal abundance extending northward to the Idaho line. Previous to these collections, but one other collection was known for this host, Dr. Clinton informs me; and that was made by Dr. Hitchcock in Oregon.

9. USTILAGO HYPODYTES (Schlecht.) Fries

On *Oryzopsis hymenoides* (Roem. & Schult.), Ricker (*Eriocoma cuspidata* Nutt.): 2514, July 18, 1919, Price, Carbon Co.

On *Hilaria Jamesii* (Torr.) Benth.: 2508, July 18, 1919, Price, Carbon Co. Host determined by Mrs. Agnes Chase; smut by Dr. Clinton, to whose herbarium a specimen has been contributed. This is the first collection of the smut on this host.

12. USTILAGO LORENTZIANA Thüm.

In inflorescence of *Hordeum caespitosum* Scrib.: 2015C, June 15, 1909, Salt Lake City.

In inflorescence of *Sitanion Hystrix* (Nutt.) J. G. Smith; 2592, June 12, 1920, near East High School, Salt Lake City. Host determined by Dr. Hitchcock.

27. USTILAGO HIERONYMI Schröt.

In inflorescence of *Bouteloua curtipendula* (Michx.) Torr. (*B. racemosa* Lag.): A collection from Utah on this grass is listed in N. A. Flora 71: 13. 1906.

29. USTILAGO TRITICI (Pers.) Rostr. Overs. K. Danske Vid. Selsk. Forh. 1890: 15. 1890

In spikelets of *Triticum vulgare* L.: 2583, July 19, 1919, Castle Dale, Emery Co. 2692a, July 18, 1920, Cedar City, Iron Co. 2510, July 18, 1919, Price, Carbon Co.

¹ The previous papers of "Smuts and Rusts of Utah" were published in MYCOLOGIA as follows: I, 2: 265-304, Nov., 1910; II, 6: 240-258, Sept., 1914; III, 11, 202-215, July, 1919.

UREDINALES

6. PUCCINIA INTERVENIENS (Pk.) Bethel in Univ. Cal. Pub. 7: 119. 1919

Aecidium roestelioides Ellis & Ever.

Puccinia Burnettii Griff.

The rust recorded under No. 101 of this list as *Puccinia Stipae* Arth. on *Stipa minor* (Vasey) Scrib. should be placed here. This collection was made Aug. 26, 1909, near Gogorza, Summit Co. Nearly defunct aecia on *Sidalcea nervata* (listed as No. 6 of the "Smuts and Rusts of Utah") were collected the same day in the immediate vicinity. Mrs. Clemens had made a collection of fine aecia in the same locality in May of the same year.

8. MELAMPSORA CONFLUENS (Pers.) Jackson, Brooklyn Bot. Gar. Mem. 1: 210. 1918

Caeoma confluens (Pers.) Schöt.

On *Grossularia inermis* (Ryd.) Cov. & Britt.: 2594, June 21, 1920, Gogorza, Summit Co. The gooseberry bushes were growing under the willow trees, and were very heavily infected. A single sorus was taken from the willows. 2621, July 1, 1920, Henry Ranch, above Panguitch Lake, Garfield Co.

On *Grossularia leptantha* (A. Gray) Cov. & Britt.: 2622, July 1, 1920, Henry Ranch, above Panguitch Lake, Garfield Co. Another collection on this host was made between Panguitch and Panguitch Lake.

On *Ribes petiolare* Dougl.: 2741, O, I, August 16, 1920, above Silver Lake, Big Cottonwood Canyon. The material was too old when collected, but Dr. Arthur considers it to belong to this species of rust. The writer has previously collected the rust on *G. inermis* within a quarter of a mile from where this collection was made. Willows were within a few feet of the bushes of *R. petiolare* from which the collection was made.

On *Salix Watsonii* (Bebb) Rydb.: 2593, II, June 21, 1920, Gogorza, Summit Co. A leaf with a few sori was taken from one willow. The gooseberries growing below were heavily infected with the *Caeoma* stage. 2637, II, July 15, 1920, same locality as No. 2593. The *Caeoma* on the gooseberries growing below the willows had all gone, leaving only scars on the leaves to show where it had been. 2772, III, Sept. 12, 1920, East Canyon, Summit Co.

9. GYMNOSPORANGIUM NELSONI Arth.

On *Juniperus utahensis* (Engelm.) Lemmon: 2511, July 18, 1919, Price, Carbon Co. 2607, June 25, 1920, Manti, San Pete Co. 2627, July 1, 1920, head Mammoth Creek above Panguitch Lake, Garfield Co. 2639, July 17, 1920, Maple Canyon branch of Cedar Canyon, near Cedar City, Iron Co.

On *Juniperus scopulorum* Sarg.: 2298, July 22, 1915, Logan Canyon, Cache Co. 2600, June 23, 1920, McGee Canyon, near Santaquin, Utah Co. 2645a, July 17, 1920, Maple Canyon branch Cedar Canyon, Iron Co. Some old cedar trees at the head of Coal Creek branch of Cedar Canyon had nearly every branch affected. 2698, July 29, 1920, Parowan Main Canyon, near Parowan, Iron Co.

On *Amelanchier mormonica* C. K. Schneider: 2718, Aug. 3, 1920, Beaver Canyon, near Beaver, Beaver Co. Host determined by Dr. Rydberg.

On *Amelanchier polycarpa* Greene: 2645, I, July 17, 1920, Maple Canyon branch of Cedar Canyon, about five miles from Cedar City, Iron Co. The host was determined by Dr. Rydberg.

On *Amelanchier Jonesiana* C. K. Schneider?: 2661a, I, July 19, 1920, Coal Creek branch, Cedar Canyon, about fifteen miles from Cedar City, Iron Co. The host is determined tentatively by Dr. Rydberg.

15. MELAMPSORELLA ELATINA (Albert & Schw.) Arth. I

Dr. Hedgcock, in his paper "Some Western Uredineae," states that the aecial stage of this rust (*Peridermium elatinum*) is conspicuous on *Abies lasiocarpa* (Hook.) Nutt, in the Manti National Forest.

17. PHRAGMIDIUM IVESIAE Sydow, II, III

Ph. affine Sydow.

On *Potentilla pulcherrima* Lehm.: 2759, Aug. 20, 1920, Richmond, Cache Co. Host determined by Dr. Rydberg.

19. PHRAGMIDIUM HORKELIAE Garrett

On *Ivesia Gordonii* (Hook.) T. & G.: 2744, Aug. 16, 1920, east slope from Twin Lakes, Big Cottonwood Canyon, Salt Lake Co.

21. PHRAGMIDIUM MONTIVAGUM Arth.

On *Rosa neomexicana* Cockerell: 2617, June 28, 1920, Bullion Canyon, near Marysville, Piute Co. 2759a, Aug. 23, 1920, Mendon, Cache Co. 2774, Sept. 18, 1920, Parley's Canyon, opposite refreshment stand.

On *Rosa puberulenta* Rydb.: 2651, July 19, 1920, Coal Creek branch, Cedar Canyon, Iron Co. 2720, August 3, 1920, Beaver Canyon, Beaver Co.

All of the above roses were determined by Dr. Rydberg.

25. PUCCINIA CLEMATIDIS (DC.) Lagerh.

On *Elymus condensatus* Presl.: 2512, July 18, 1919, Price, Carbon Co. Determined by Dr. Arthur.

On *Poa Fendleriana* (Steud.) Vasey: 2673, II, Wiley Camp, Zion National Park, Washington Co.

On *Ranunculus Cymbalaria* Pursh.: 2613a, I, June 28, 1920, Marysville, Piute Co.

On *Sitanion Hystrix* (Nutt.) J. G. Smith: 2710, ii, Aug. 3, 1920, Beaver Canyon, near Beaver, Beaver Co.

On *Sitanion jubatum* Smith: 2671, ii, July 22, 1920, Zion National Park, near Wiley Camp, Washington Co. The near-by *Clematis ligusticifolia* bore aecia.

32. PUCCINIA URTICAE (Schum.) Lagerh.

P. caricis (Schum.) Schröt.

On *Carex nebraskensis* Dewey: 2577, Oct. 11, 1919, Riverton, Salt Lake Co.

55. PUCCINIA GRAMINIS Pers.

On *Elymus Macounii* Vasey: 2576, Oct. 11, 1919, Riverton, Salt Lake Co. Host determined by Mrs. Agnes Chase; rust by Dr. Arthur.

On *Triticum vulgare* L.: 2719, II, Aug. 3, 1920, Beaver, Beaver Co. Rust determined by Dr. Arthur.

59. PUCCINIA HELIANTHI Schw.

On *Helianthus annuus* A. Gray: 2675, July 22, 1920, Zion's Canyon, Washington Co.

63. PUCCINIA HIERACII (Schum.) Mart.

On *Hieracium griseum* Rydb.: 2636, July 15, 1920, Gogorza, Summit Co.

69. PUCCINIA JONESII Peck

On *Cogswellia* sp.: 2650, July 17, 1920, Maple Canyon branch of Cedar Canyon, Iron Co. 2702, July 29, 1920, Parowan Main Canyon, Iron Co. The host in both collections was too old for determination, but is not one of the species previously reported as a Utah host for *P. Jonesii*.

76. PUCCINIA MENTHAE Pers. II

On *Mentha spicata* L.: 2692, July 28, 1920, Cedar City, Iron Co. 2756, August 20, 1920, Providence, Cache Co. 2757, August 20, 1920, Millville, Cache Co. Not before reported on this host for Utah.

79. PUCCINIA MONTANENSIS Ellis

On *Agropyron tenerum* Vasey: 2519, II, July 22, 1919, Orangeville, Emery Co. Determined by Dr. Arthur.

On *Elymus canadensis* L.: 2517, II, July 22, 1919, Orangeville, Emery Co. Determined by Dr. Arthur.

On *Hordeum jubatum* L.: 2518, II, July 22, 1919, Orangeville, Emery Co. Determined by Dr. Arthur.

78. PUCCINIA MONARDELLAE Dudley & Thompson II

On *Madronella oblongifolia* Rydb.: 2707, July 30, 1920, "Fish Lake Mtn.," Iron Co. Host determined by Dr. Rydberg; rust by Dr. Arthur.

85. PUCCINIA PATTERSONIANA Arth.

On *Agropyron spicatum* (Pursh) Scribn. & Smith: 2599, II, III, June 21, 1920, Gogorza, Summit Co. The only suspicious aecia found in the vicinity were those included in this list as *Uromyces Brodiaeae*. Although some of the aecia were quite old, no telia nor uredinia could be found.

On *Elymus condensatus* Presl.: 2770, II, III, Sept. 12, 1920, East Canyon, near Gogorza, Summit Co., not far from collections 2599. This was a heavy infection. The aecial host of this rust has never been determined.

96. PUCCINIA SHERARDIANA Körn.

P. Malvastri Peck.

On *Sphaeralcea pedata* Torr.: 2680, July 21, 1920, Zion's Canyon, Washington Co. Host determined by Dr. Rydberg.

On *Sphaeralcea arizonica* Heller: 2680a, July 23, 1920, Hurricane, Washington Co. Host determined by Dr. Rydberg.

On *Sphaeralcea dissecta* (Nutt.) Rydb.: 2712, Aug. 3, 1920, Beaver Canyon, Beaver Co. Host determined by Dr. Rydberg.

On *Sphaeralcea subrhomboidea* Rydb.: 2753, August 19, 1920, Logan, Cache Co. Host determined by Dr. Rydberg.

105. PUCCINIA SUBNITENS Dietel

On *Heliotropium spatulatum* Rydb. I, collected by E. M. Hall May 17, 1919, at St. George, Washington Co.

On *Tropaeolum* sp. cult. I, collected by E. M. Hall May 22, 1919, at St. George, Washington Co. This is the first collection ever made on this host.

On *Beta vulgaris* L. I, collected by E. M. Hall May, 1919, at St. George, Washington Co.

On *Atriplex rosea* L. (*A. spatiosa* A. Nels.) I, collected by E. M. Hall May 18, 1919, at St. George, Washington Co. I, collected by Ellsworth Bethel May 27, 1919, at Salt Lake City.

On *Lepidium perfoliatum* L. I, collected by Ellsworth Bethel May 27, 1919, at Salt Lake City. This is the first collection reported on this host.

On *Chenopodium album* L. I, collected by Ellsworth Bethel May 27, 1919, at Salt Lake City.

107. PUCCINIA SUBSTERILIS Ellis & Ev. X, iii

On *Stipa Lettermanii* Vasey: 2687, Coal Creek branch of Cedar Canyon, about fifteen miles from Cedar City, Iron Co. 2771, Sept. 12, 1920, East Canyon, Summit Co.

On *Oryzopsis hymenoides* (Roem. & Schult.) Ricker: 2670, July 22, 1920, Zion National Park, across river from Wiley Camp. The mesospores of this collection were in germinating condition.

114. PUCCINIA RUGOSA Billings, King's Report 40th Par. 914. 1871

P. Troximontis Pk.

On *Ptilocalais tenuifolia* Osterhout: 2596, June 21, 1920, Gogorza, Summit Co.

129. UROMYCES PUNCTATUS Schröt.

On *Kentrophyta impensa* (Sheld.) Rydb.: 2647, July 17, 1920, Maple Canyon branch of Cedar Canyon, Iron Co. Host determined by Dr. Rydberg.

On *Astragalus* sp.: 2659, July 19, 1920, Coal Creek branch of Cedar Canyon, Iron Co. A small species of *Astragalus*, not previously included in this list.

On *Astragalus humistratus* A. Gray: 2660, July 19, 1920, Cedar Canyon, Iron Co. Host determined by Dr. Rydberg.

On *Astragalus Sonorae* A. Gray: 2660a, July 19, 1920, Cedar Canyon. Host determined by Dr. Rydberg.

131. UROMYCES INTRICATUS Cooke

Uromyces Eriogoni Ellis & Hark.

Two collections were made, each on a different species of *Eriogonum*, and each new to the species hitherto recorded in this list. Both hosts were too young, however, for specific determination. One collection was made in Maple Canyon, Iron Co., and the other in Zion Canyon, Washington Co.

132. UROMYCES PROEMINENS (DC.) Pass.

U. Euphorbiae Cooke & Peck.

On *Chamaesyce Greenei* (Millsp.) Rydb.: 2646a, July 18, 1920, Cedar City, Iron Co. 2509, July 18, 1919, Price, Carbon Co.

On *Chamaesyce rugulosa* (Engelm.) Rydb.: 2708, Aug. 3, 1920, Beaver Canyon, Beaver Co. The host of each of these collections was determined by Dr. Rydberg.

148. COLEOSPORIUM RIBICOLA (C. & E.) Arth. II

On *Ribes cereum* Dougl.: 2638, July 17, 1920, Maple Canyon, branch of Cedar Canyon, Iron Co. 2705, July 30, 1920, First Left-hand Fork Parowan Canyon, Iron Co. 2716, August 4, 1920, Beaver Canyon, Beaver Co. The host of these collections is considered to be the same as *R. inebrians* Lindl.

149. CRONARTIUM FILAMENTOSUM (Peck) Hedge. & Long I

Peridermium filamentosum Peck.

On *Pinus ponderosa scopulorum* Engelm.: 2628, July 1, 1920, extending southward from the south edge of Bryce Canyon, Garfield Co. This is the first record of the collection of this *Peridermium* in Utah. The *Peridermium* at this location is abundant, and is doing considerable damage to the pine trees.

150. CRONARTIUM PYRIFORME (Peck) Hedge. & Long I

Peridermium pyriforme Peck.

Cronartium Comandrae Peck.

On *Pinus ponderosa scopulorum* Engelm. Collected by Vernon Christensen (a former student in botany at the East High School, Salt Lake City), July 15, 1920, headwaters Provo River, Wasatch Co. This is the first collection of this *Peridermium* in Utah, although the *Cronartium* has previously been reported from several localities.

152. GYMNOSPORANGIUM GRACILENS (Peck) Kern & Bethel I

On *Philadelphus occidentalis* A. Nelson: 2669, July 22, 1920, Zion Canyon, Washington Co. Host determined by Dr. Rydberg. This extends the distribution of this *Gymnosporangium* about two hundred miles westward.

153. GYMNOSPORANGIUM INCONSPICUUM Kern

On *Juniperus utahensis* (Engelm.) Lemmon: 2641, July 17, 1920, Maple Canyon branch of Cedar Canyon, about five miles from Cedar City, Iron Co. The entire tree was covered with brown smears at and near the tips of the branchlets. 2700, July 29, 1920, Parowan Main Canyon, opposite Second Left-hand Fork. The branchlets covered with this rust (both in this collection, and No. 2641 above) seemed to be dead or dying.

On *Amelanchier utahensis* Koehne: 2643, I, July 16, 1920, Maple Canyon branch Cedar Canyon, about five miles from Cedar City, Iron Co. The infection was so heavy on the Amelanchiers of the region that scarcely a fruit could be found not affected by the rust. 2674, July 22, 1920, Zion National Park, near Wiley Camp, Washington Co. All of the fruits of all of the trees in the canyon seemed to be affected. 2704a, July 30, 1920, First Left-hand Fork could be found not affected by the rust. 2674, July 22, 1920, Zion National Fork Parowan Canyon, near Parowan, Iron Co. 2725, I, Aug. 7, 1920, Fillmore, Millard Co. The peridia are beautifully developed in this collection. Rust determined by Dr. Arthur.

On *Amelanchier prunifolia* Greene: 2669a, I, July 22, 1920, Zion National Park, above Wiley Camp, Washington Co.

On *Amelanchier Jonesiana* C. K. Schneider: 2701, I, July 29, 1920, Parowan Main Canyon, near Parowan, Iron Co. Host determined tentatively by Dr. Rydberg.

All of the above aecial forms are on the fruit.

The canyons of southwestern Utah are surely a paradise for the collector of the Gymnosperms. Indeed, they are present in such profusion, and on such a variety of hosts, as to offer a very considerable puzzle to the collector who attempts to keep the species separated.

154 MELAMPSORA ALBERTENSIS Arth. I

Caeoma occidentalis Arth.

On *Pseudotsuga mucronata* (Raf.) Sudw.: 2685, July 27, 1920, Coal Creek Canyon branch of Cedar Canyon, about fourteen miles from Cedar City, Iron Co. This is the first recorded collection of this *Caeoma* for Utah, although the *Melampsora* on *Populus tremuloides* has been reported from San Juan Co.

164. PUCCINIA GRINDELIAE Peck

On *Chrysopsis horrida* Rydb.?: 2676, July 22, 1920, Zion Canyon, Washington Co.

181. UROMYCES OBLONGUS Vize

Three collections of this rust were made: 2679, July 22, 1920, Zion Canyon, Washington Co.; on *Trifolium Kingii* S. Wats.: 2686, July 27, Coal Creek branch Cedar Canyon, Iron Co.; and 2706, July 30, 1920, First Left-hand Fork Parowan Canyon, Iron Co. The rust was abundant; but with the exception of No. 2686 the *Trifolium* plants were too old to be determined.

184. *AECIDIUM ALLENII* Clinton

On *Shepherdia canadensis* Nutt.: 2686ab, July 27, 1920, Coal Creek Canyon branch of Cedar Canyon, Iron Co.

187. *CRONARTIUM OCCIDENTALE* Hedge., Bethel & Hunt

On *Pinus edulis* Engelm.: 2614a, June 27, 1920, mouth of Bullion Canyon, near Marysville, Piute Co. 2697, July 29, 1920, Parowan Main Canyon, Iron Co. A number of infections were on the tree from which this collection was made.

On *Ribes aureum* Pursh: 2696, July 29, 1920, Parowan Main Canyon, Iron Co. 2715, Aug. 3, 1920, Beaver, Beaver Co. 2724, Aug. 6, 1920, Hinckley, Millard Co. 2726, Aug. 7, 1920, Fillmore, Millard Co. 2730, Aug. 9, 1920, Holden, Millard Co. 2732, August 9, 1920, Scipio, Millard Co. 2738, August 13, 1920, Oak City, Millard Co. 2748, Aug. 20, 1920, Lewiston, Cache Co. 2751, Aug. 22, 1920, Hyrum, Cache Co. This was beautiful uredineal material. 2760, Aug. 23, II, III, Mendon, Cache Co. 2763, II, III, Aug. 24, 1920, Morgan, Morgan Co. The rust in III was also collected October 15, 1920, on bushes along Current Creek, in DuChesne County, a half-mile from the Wasatch County line by Miss Ruby Harkness, a former student in botany in the East High School, Salt Lake City. She reports that she found the *Cronartium* on the first bush examined.

On *Ribes cereum* Dougl.: 2714, August 3, 1920, Beaver Canyon, just below Upper Telluride Plant, about twelve miles from Beaver, Beaver Co. (This host is not considered sufficiently distinct from *R. inebrians* to warrant their separation.)

On *Grossularia leptantha* (A. Gray) Cov. & Britt.: 2713, Aug. 3, 1920, same locality as No. 2714 given immediately above. A small tree of *Pinus edulis* grew between the bushes. Not before reported for Utah on either of these last two hosts.

All of the above are new records for the distribution of the *Cronartium* and the *Peridermium*.

189. *GYMNOSPORANGIUM JUVENESCENS* Kern

On *Juniperus scopulorum* Sargent: 2642, III, July 19, 1920, Cedar Canyon near Cedar City, Iron Co. 2698a, July 29, 1920, Parowan Main Canyon near Parowan, Iron Co. 2640, July 17, 1920, Maple Canyon branch Cedar Canyon, about five miles from Cedar City, Iron Co. 2699, July 29, 1920, Parowan Main Canyon, near Parowan, Iron Co.

On *Amelanchier oreophila* A. Nels.: 2618, I, June 28, 1920, Bullion Canyon, near Marysville, Piute Co.

192. *PERIDERMIIUM COLORADENSE* (Dietel) Arthur & Kern

On *Picea Engelmanni* (Parry) Engelm.: 2661, July 9, 1920, Coal Creek branch Cedar Canyon, about fourteen miles from Cedar City. The aecia were just beginning to develop at this date. Many trees were affected.

203. *UROMYCES FUSCATUS* Arth.

On *Rumex paucifolius* Nutt.: 2636a, July 15, 1920, Gogorza, Summit Co. There has been some doubt in regard to the true identity of the host of this rust, the original description giving it as *Polygonum alpinum*. Several collections were made at this date from the same locality from which the original Utah collection was made June 29, 1915. The host plants were in bloom and young seed, and one plant was collected in flower with the broad lower leaves strongly infected by the rust. Unfortunately, this specimen has been mislaid. Host determined by Dr. Rydberg.

206*.² *GYMNOSPORANGIUM JUNIPERINUM* (L.) Mart. Fl. Crypt. Erlang. 333.
1817

On *Juniperus siberica* Burgsd.: 2615, June 28, 1920, Bullion Canyon, near Marysville, Piute Co. This is the first collection of this rust reported from Utah

207*. *PHRAGMIDIUM IMITANS* Arthur, N. A. Flora 7: 165. 1912

On *Rubus strigosus* Mich.?: 2684, July 27, 1920, Coal Creek branch Cedar Canyon, about fourteen miles from Cedar City, Iron Co. The host was submitted to Dr. Rydberg for determination, and he writes: "It is none of the Rocky Mountain forms of red raspberry, but may be an escape of the eastern *R. strigosus*."

208*. *PUCCINIA APOCRYPTA* Ellis & Tracy

On *Agropyron tenerum* Vasey.: 2663, II, III, July 19, 1920, Coal Creek branch Cedar Canyon, about fourteen miles from Cedar City, Iron Co. Host determined by Dr. Hitchcock; rust by Dr. Arthur.

209*. *PUCCINIA ANTIRRHINI* Diet. & Holw. Hedwigia 36: 298. 1897

On leaves and stems of *Antirrhinum majus* L.: 2507, July 12, 1919, Salt Lake City, Salt Lake Co. This destructive rust of greenhouse plants is altogether too widely spread in the greenhouses of Salt Lake and adjoining counties.

210*. *PUCCINIA MICRANTHA* D. Griff I. Bull. Torrey Club 29: 299. 1902

On *Grossularia leptantha* (A. Gray) Cov. & Britt.: 2717, Aug. 3, 1920, Beaver Canyon, just below Upper Telluride Plant, about fourteen miles from Beaver, Beaver Co. This collection moves the range of the species at least 200 miles westward.

211*. *PUCCINIA SUAVOLENS* (Pers.) Rostr. Forh. Skand. Nat. 11: 339. 1874

On leaves of *Cirsium arvense* (L.) Scop.: 2506, July 9, 1919, Provo, Utah Co. This collection extends the westerly range of this species by several hundred miles.

² Numbers followed with the asterisk (*) are those of species not included in any of the three preceding lists.

- 212*. UROMYCES BRODIEAE Ellis & Hark. I. Bull. Cal. Ac. Science 1884: 28.
1884

On *Brodiaea Douglasii* S. Wats.: 2597, June 21, 1920, Gogorza, Summit Co. The rust seemed to attack only the plants of the first year's growth. No plants in bloom could be found with the rust on them. No leaves with uredinea or telia could be found at this time, nor again on July 15. This leads to the suspicion that possibly we might have here the aecium of an unattached grass rust. As *P. Pattersoniana* occurred in abundance in the immediate vicinity, it was suspected of being the alternate form. This will at least bear investigation.

- 213*. UROMYCES MEDICAGINIS Pass. in Thüm. Herb. Myc. Oecon. 156. 1874

On leaves of *Medicago sativa* L.: 2766, Sept. 4, 1920, Salt Lake City. Not hitherto reported from Utah. Schroeter (Krypt. Fl. Schl. 31: 306. 1887) and Treboux (Ann. Myc. 10: 74. 1912) state that in Europe this rust has its aecial stage on various species of *Euphorbia*. The aecial stage has not yet been recognized as occurring in America.

EAST HIGH SCHOOL,

SALT LAKE CITY, UTAH.